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PADIS - its past achievements and future directions

THE ROLE OF A DOCUMENTATION AND INFORMATION SYSTEM IN AFRICA's DEVELOPMENT: PADIS - ITS PAST ACHIEVEMENTS AND FUTURE DIRECTIONS

1. A documentation and information system is no more than a collection of recorded communications of human knowledge as contained in books, learned journals, government publications, etc. and which have been processed and organized for the use and scientists, humanists, scholars, professional men, policy makers, government officials, etc. In short, it can be described as more or less a traditional library whose value has been enhanced and transformed by means of the computer. The computer has made it possible for data relating to these recorded communications to be made available almost instantly by pushing a button. Computer technology and space technology have helped in no small measure to make universally available to those who wish the whole stock of human knowledge, without which scientific and technological innovation is hardly possible. There is a definite correlation between availability of knowledge (information) and scientific and technological development. For it is by building on the achievements of the predecessors which are transmitted through books and articles in learned journals (communications) that present day research workers and inventors make current breakthroughs. In short, the developed countries of the world have reached their present socio economic pedestal through the dissemination of information in different fields of endeavour. Countries that aspire economic and technological development can only re ch a similar level by having information not only about their own physical and natural circumstances but also about the activities and processes through which the developed world has passed.

2. The fact of the relative underdevelopment of the African continent hardly needs serious elaboration. After all, it has the largest concentration of the least developed countries of the world. Constraints on their development would seem to include lack of technical know how and skills to exploit the physical and natural resources with which many of them are endowed; ignorance as to the location and extent of these resources; inadequate or non-existent managerial skills and a host of others. Put differently, developing African countries lack appropriate manpower that possesses the knowledge (information) and skills to identify or discover their natural endowment and to exploit them. An attempt will be made to elaborate on these inadequacies and shortcomings by looking at a few different sectors like agriculture, geology, industry, scientific research and social welfare in order to see how availability of information and documentation can help to correct them.

3. Agriculture is the bedrock of the economy of most African countries. As a result, many of them have concentrated on the production of cash crops in order to earn foreign exchange. In the colonial days, the metropolitan powers spared no effort to undertake both laboratory and field research which ensure increased and continuous production. They studied the climatic, pedological and other conditions under which cocoa, coffee, tea, groundnuts, palm products and others

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would grow and thrive. As a matter of fact, the independent countries of Africa have largely depended on the scientific information accumulated during the colonial era for the survival of their cash crop economy. What new information there has been since independence, has been gathered in agricultural research stations in African countries. Unfortunately, such information is not as widely disseminated as during the days of the colonial powers. African countries do not seem to have effective means of collecting their agricultural data on a systematic basis let alone of sharing them among neighbouring countries whose problems and conditions are similar. If there is a well developed data base on agricultural economy, duplication of research effort will be avoided. Time and effort would be concentrated on other important areas. Furthermore, all will gain by sharing such information.

4. In recent times, concern has been expressed in the highest quarters about the increasing inability of African countries to feed themselves. There are a number of reasons for the unsatisfactory situation including the migration of erstwhile farm labour from the rural to urban areas. But by far the most devastating has been the failure of crops due to climatic factors and changes as well as the destructive activities of pests. No doubt, agricultural scientists in African countries are investigating these problems. Their various laboratories are making useful findings. Unfortunately, some of these findings which do not get published in learned journals perhaps because of the nature of their findings or targetaudience get lost in official reports and files. African scientists do not seem to have the means of pooling their knowledge. Research workers who work in similar fields ought to be able to share their findings and avoid needless duplication of efforts. By that means it will be possible to build on previous work. The most effective means of sharing scientific information nowadays in by the creation of data files. The Food and Agricultural Organization (FAO) has provided a good lead in this direction by creating a data file in the field of agriculture which is known as AGRIS.

5. Technological know how is a very important ingredient in the process of industrial development in any country. But supply of raw materials, minerals and other natural resources is no less important. The ex colonial powers firmly maintained their stranglehold on their colonies in order to ensure free and continuous flow of these raw materials to their factories. If African countries must produce industrial goods locally it is essential for them to ensure a supply of raw materials. It is a notorious fact that most African countries do not have an accurate record, if at all, of the variety and quantity of minerals and natural products available within their boundaries. Therefore, the first step necessary in the process of industrialization is to compile an inventory of these resources so that appropriate decisions as to which goods can profitably be produced locally can be taken. Such information will be stored in a data base and retrieved at will. Some laudable steps are already being taken towards the creation of common markets in various regions of the continent. When such economic unions have started to operate effectively information relating to the

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availability of mineral and other resources will enable the various governments to work out areas of co-operation with regard to industrial development. It will be evident from the foregoing that the provision of information regarding the location, quantity and extent of mineral resources will assist the planning and establishment of industries in developing African countries.

6. The government and other authorities of African countries are well aware that they cannot achieve industrial development merely because they have full and detailed information about their natural and physical endowments. They still have to depend for capital and expertise on either the governments of developed and industrial countries or on multinational corporations who very often are not guided in their operations by altruistic reasons. National interests and profit motivation weigh most heavily in nearly all the activities of foreign countries and corporations. They, therefore, drive as hard a bargain as possible with the developing countries. The less informed or more inexperienced the official representatives of the poor countries are, the more stringent the conditions imposed. It will therefore, be helpful if developing African countries establish a network of industrial information.

7. When new industries have been established, governmental authorities have a duty and responsibility to establish quality control and standardization in order to protect the interests of consumers. It does not matter whether the industries in question are products of indigenous technologies or services. Laws, ordinances and guidelines are, therefore, produced for the regulation of industries. Here again, it will be very profitable and helpful if African countries can share information and documentation in the field of industrial regulation among themselves.

8. It is not enough from the point of view of economic development to have knowledge of the location and quantity of minerals, raw materials and the like. It is of vital importance to investigate their peculiar properties for the purpose of effective utilization. For instance, it was known that coal existed in the mines of Udi in Nigeria but it was only after appropriate scientific tests had been made that it came to light that it was not suitable for the proposed steel industry. Knowledge derived through such research activities when collected and dissiminated in a systematic and organized manner among African scientists who may be working in related fields can be very useful for scientific development. Furthermore, it is important and in the interest of their work for African scientists to keep abreast of new methods and discoveries being made in the laboratories of industrial countries of the world. Facilities for relevant and useful information abound in data bases which have been created in Europe and America. African scientists, by gaining access to such new knowledge which can be adapted to local needs can make useful contributions to the development of their countries.

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9. So far, we have paid attention to the importance of documentation and information to the work of the agricultural scientist, natural scientist and the ind ustrialists to name a few, all of whose activities can lead to socio-economic development. But most developing countries have discovered that development does not necessarily occur spontanously. It has to be induced through the method of planning. Many African countries do, therefore, formulate development plans that span specific periods of time e.g. five year, three year development plans. Clearly, very little meaningful planning can be done in the absence of data and information relating to the different sectors including agriculture, industry, trade and social welfare programmes. A few illustrations will bring to light the importance of data to the work of the planner. In the field of education, for instance, unless adequate statistical information is available regarding the composition of the population such as the number of children of school going age or the geographical distribution of the population, it will be difficult to determine the number and type of educational institutions to establish where and when. Similar data are of crucial importance for the creation of health facilities, old age pension schemes etc. Hardly any social welfare facility can be provided without the provision of appropriate data. In addition to scientific data already mentioned, agricultural planning can be effectively done in the face of facts relating to the nature, extent, and history of private land holding. Before governments can embark on development projects of any scale they need information about the financial resources that are available to them in the form of revenue from customs duties, taxes, exports etc. The documentation and storage of such data are very crucial to development planning. From the foregoing it is evident that the development planners, no less than the policy makers and administrators need a lot of data and information before they can make decisions that can lead to the overall development of their country.

10. Since development of a country at the present stage of human affairs is not likely to occur spontaneously, a lot of planning on the part of government has got to be done. Needless to say, the various categories of experts that participate in development planning need data and information in order to pursue their tasks meaningfully. These data and information are contrained in reports, surveys, research findings, population, trade and other statistics, inventories of resources etc. It is the function of a documentation and information system to collect, organize, retrieve and disseminate all the above mentioned material containing data. The role of a documentation and information system, therefore, is to make readily available to those who need it information that will help the plan meaningfull for development.

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11. The following are excerpts from the various chapters of the Lagos Plan of Action which throw some light on the expected contributions and role of information and documentation activities in the process of social and economic development:

12. "Member States are convinced of the fundamental role of intra African industrial co-operation in all its various forms as an instrument for self reliance and acceleration of industrial development to achieve the 2 per cent Lima target for Africa, taking into account, in particular, the discouraging attitude of developed countries, and the present low progress in the intra African Co-operation. Member States have therefore, decided to give concrete expression to their will to co-operate by adopting the following measures:"

> "exchange of information among Member States on technical and financial specifications and costs related to contracts on implementation of industrial projects with developed countries as a means of reducing excess costs in foreign exchange resulting from the weaknesses in negotiation capacity of developing countries due to lack of information among them relating to these contracts;

NATURAL RESOURCES

13. "The major problems confronting Africa in the field of natural resources development include: the lack of information on natural resources endowment of large and unexplored areas and the activities of transnational corporations dealing with natural resources assessments; the lack of adequate capacity (capital, skills and technology) for the development of these resources; a considerable dependence on foreign transnational corporations for the development of a narrow range of African natural resources selected by these corporations to supply raw materials needs of the developed countries; the inadequate share in the value added generated by the exploitation of natural resources of Member States due to imperfect pricing and marketing practices; non integration of the raw materials exporting industries into the national economies of the Member States thus impeding backward and forward linkages; extremely low level of development and utilization of those natural resources of no interest to foreign transnational corporations; and disappointingly low general contribution of natural resources endowment to socio economic development. Because of these factors Member States are unable to exercise meaningful and permanent sovereignty over their natural resources".

14. "During the 1980s the strategy for the developing countries of Africa in their natural resources development should aim at:

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undertaking the assessment of their natural resources endowments and the use of the information on natural resources distribution and availability for national and African multinational socio economic development projects intended to produce goods and services to meet the needs of Member States.

"In recognition of the significance of natural resources in providing a sound base for national socio economic development, Member States should take early steps to acquire a thorough knowledge of their natural resources endowments. These include the establishment of manpower development and institutions building programmes for the conduct of field studies and preparation of inventories of natural resources."

In particular measures should be taken by each Member State to ensure that all results and basic data, especially maps, files, logs and all other information acquired by foreign transnational companies during their mineral prospection activities in the country are handed over to the Government."

"To ensure the best possible storage and utilization of these data, a documentation centre (data bank should be established at national level."

MINERAL RESOURCES

15. The main development objectives of the strategy for mineral resources development during the 80s would be:"

"Development of a system of transfer of know how, and exchange of scientific, technical and economic data in geology, mining activities and mineral economics among Member States as well as with countries from other developing regions."

16. "The objectives outlined above should be achieved through the following activities".

"A joint regional programme for the preservation and proper use of geological documentation, reports and maps and mineral collections."

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HUMAN RESOURCES DEVELOPMENT AND UTILIZATION

17. "The required action at those levels would be necessity be directed to reinforcing national action through providing guidelines for, and facilitating action in, manpower development and utilization. The programme strategy therefore, emphasizes co-operation and collective self reliance in manpower resources through:"

> "support for an information and placement service facilitating the identification and employment of African experts and consultancy organizations such as in being operated by the ECA programme for promoting the use of African experts and the development of indigenous consultancy services;"

18. "Support for the OAU/ECA Co-ordinated and administered Expanded Training and Fellowship Programme for Africa which aims at training 3000 Africans in five years with priority to the manpower requirements of the various priority sectors and product lines already mentioned; to the development of the teaching and research staff of regional and subregional institutions, to experience transfer, and to evolving an African TCDC in utilizing available training facilities within the region. This programme needs a minimum operational budget of US $1.5 million a year as well as training places. Support by African States are required through:"

> "providing regular information on national training and scholarship facilities available for training nationals of other African countries."

SCIENCE AND TECHNOLOGY

19. "Lack of information is one of the most serious obstacles to the selection, acquisition and use of appropriate technology options. An understanding of the local environment and the character and orientation of the transferees is as important as information on the technology to be supplied. Care should therefore be taken to ensure that the technology supplied matches the local needs identified. Machinery should be established to assess and promote the acquisition and disemination of information on the range of alternative technologies, processes and products available for particular applications. The following measures are proposed.

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20. "Establishment or strengthening of a national centre for technology information dealing with:

> "Importation of technology; Identification of subsidiaires of foreign firms in the region and elsewhere; compilation of information on the operation of transnational corporations and regular dissemination of such information to the business sectors of the economy; compilation of data on foreign investments imports, raw materials, prices of products on the international market standards and related matters, etc.
>
> "Data and statistics on local technological capabilities and infrastructure; Data on local capability to obtain, adapt or generate required technology; information on the relationship between demand for goods and services and efforts to supply adequate technology (and the related problems of understanding the character and orientation of transferees); information on centres capable of providing technical advice and information, on existing engineering consulting firms; standards institutions, etc.,
>
> "The provision of the above services to various sectors of the economy, but especially to the production system."

"The organization jointly by African and Third World governments of programmes to provide fellowships and/or scholarships to enable "science and technology" students to study and visit centres of technology development in countries such as China, Japan, India, the Republic of Korea, etc., to gain experience and collect information on the history of technology development in these countries. Such programmes should be planned by inter disciplinary teams of experts drawn from Third World and participating African countries as African national training programmes - involving universities, research and development institutions, industry, management and business institutions;

"Encouragement of the establishment and/or strengthening of local scientific and technological associations and societies. National technology information centre should establish or strengthen ties with other regional technology information systems and technology information centres of Third World countries to facilitate the flow, and exchange of information in all fields relevant to socio-economic development.

"With the assistance of ECA, regional institutions and other Third World country institutions, pilot studies on agricultural and industrial extension services so as to establish an improved framework for feed back from them to the research and development and productive centres;

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"Actively supporting and strengthening African Regional organizations in the field of patent documentation and information, such as ESARIPO and ESAPADIC, CAPI and PADIS."

HEALTH AND SANITATION

21. "Such machinery will also be responsible, inter alia, for the performance of the following activities:"

> "Co ordinating the collection, analysis, assessment, cataloguing and dissemination of relevant health information from indigenous and foreign sources,"

TRADE AND FINANCE

> "To reduce the cost of trade promotion activities, Member States should endeavour to establish, through sub regional associations of trade promotion centres and through the Association of African Trade Promotion Organizations, joint facilities for conducting market surveys, disseminating information on trade and training experts in foreign trade promotion."
>
> "Trade data banks should be established at the sub regional and regional levels."

PADIS:- Its Achievements so far and Future Directions

22. The political leaders of the African continent have all along expressed their commitment to the social and economic development of the region through national and collective self reliance. They have also demonstrated an awareness of the important role which a documentation and information system can play in the process of development. As a result, the UNECA Conference of Ministers and Heads of States of African countries passed a number of resolutions urging the Executive Secretary of UNECA to establish numerical and non numerical information systems and services.

23. In response to these resolutions and after the necessary preliminary preparations had been made, the Pan African Documentation and Information System (PADIS) was inaugurated under the auspices of UNECA on 30 January 1981. Its objectives are as follows:-

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(a) to identify, collect, process and store documents particularly of African provenance that contain information that relate to the social and economic development of Africa;

(b) to facilitate the exchange, sharing and utilization of such information by establishing appropriate organizational machinery and using modern technology.

24. In order to realise these objectives a decentralized structure of organization has been adopted. It consists of:

(i) National centres to be established by each member state of UNECA;

(ii) Sub regional Centres (five, to be set up in each sub region of the continent;

(iii) Institutional participating centres to be based in regional and sub regional institutions;

(iv) The Central Co-ordinating Office to be based at ECA headquarters in Addis Ababa.

PADIS plans to pursue the following areas of activity:--

(1) Bibliographic Reference Services which consists of the following files:-

(i) PADIS-DEV

25. This is the development information reference file and is being built in co-operation with certain international and African regional organizations including UNDIESA (United Nations Department of International Economic and Social Affairs), African Development Bank and the Economic Community of West African States.

(ii) PADIS-COM

26. It is hoped that this file will contain technical and scientific bibliographic reference to documents of relevance to the African continent and is to result from collaborative effort with international co-operative information systems, regional organizations and National Information and Documentation Centres. Contributions are expected from, to name a few, FAO/AGRIS, ILO/ILIS, IFIS, IAEA/INIS, Pan African Institute for Development, African Regional Centre for Science and Technology, African Network for Administrative Information (ANAI).

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(2) Descriptive Inventory Service

27. Arising from the Buenos Aires Plan of Action for Promoting and Implementing Technical Co-operation among Development Countries, PADIS plans, under the auspices of UNDP to keep:

(a) a register of African experts and specialists in all fields of human endeavour;

(b) a register of on going research and development projects, including their various stages of implementation;

(c) a file of research and training institutions.

Numerical Data Bank Services

(8) Numerical Data Bank Services

28. These are envisaged to cover the collection, formatting and dissemination of numeri cal data on Africa. They are to consist of the following components:

(i) PADIS-STAT:-- This file is to be implemented in collaboration with the Statistical Offices of African Countries and the UNECA Division of Statistics. It will consist of chronological statistical data on Africa.

(ii) PADIS-TEND:- This is the Pan African technical, numerical non Statistical data bank on national resources, industrial facilities, industrial products and commodities.

4. System's Interconnection Support Services

29. Exchange and information sharing are greatly facilitated by means of quick and direct communication channels, not only between national centres, sub regional centres and the Central Co-ordinating Office, but also between African countries and data bases in Europe and America. Towards this end PADIS/NET, i.e. a PADIS telecommunication data transmission network will be established so as to interconnect all the PADIS data bases at all levels. It is hoped that satellite communication and ground stations will be used.

5. Data Processing Support Services

30. The main component of this activity is PADIS ADMIN which is an integrated system for administrative information including software packages for personnel, finance, stock keeping, medical records, project management systems, etc.

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ACHIEVEMENT OF PADIS SO FAR

31. Staffing:- PADIS began operations with a complement of thirty staff members of nine professionals, fifteen semi professionals and six secretarial and clerical staff, It consists of the Computerized Documentation Section, the Computer Operations Section and the Maintenance Reprography and Printing Section.

Computer (Hardware and Software) and other equipment

32. An HP 3000/III computer having a configuration of 2 megabyte core memory and 644 megabyte peripheral memory (3 disc dirves and 2 tape drives as well as 2 line printers and 67 terminals) was installed. For software, MINISIS which is a package for storage and retrieval textual data was adopted with an eye on ensuring compatibility with other systems. In anticipation of PADIS plan to process and analys statistical and other forms of data the following softwares were acquired: SPSS Statistical Package for the Social Sciences; ISEA on line software for econometric analysis; IPACA an on line package for planning and budget control; TDP text and document processor; and ASK a data base interrogating and reporting software.

Training of Personnel

33. The Central Co-ordinating Office trained personnel in the Computerized Documentation Section and the Computer Operations Section for periods ranging between 6 and 12 months on various aspects of the work of the project.

34. Short training courses were also organized for ECA staff members in the following Divisions:- Statistics, Population, and Social Research and Planning.

35. A four week training programme was organized for English speaking African countries to enable them use a new software designed mainly to handle censuses and survey data.

36. Two workshops on documentation and microfiching techniques were organized in collaboration respectively with the Government of Zimbabwe (4 to 8 August 1981) and the African Development Bank (19 to 26 July 1981).

37. A total number of thirteen trainees from eight African countries (Botswana, Congo, Gabon, Guinea, Ivory Coast, Liberia, Rwanda, Senegal) have undergone training programmes of varying duration in documentation work and information systems management at the PADIS Central Co-ordination Office in Addis Ababa, Ethiopia.

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PADIS-DEV and DEVINDEX

38. By the end of 1981 some 2,000 records had been analysed and processed to from the uncleus of the PADIS DEV component. Five issues of DEVINDEX AFRICA an index to documents on the social and economic development of Africa had been published. Issues of the publication have been widely circulated. Furthermore, the Development Information System of the United Nations Department of International Economic and Social Affairs provided the Central Co-ordination Office with its data base amounting to 3,500 bibliographic of relevance to African development.

PADIS COM

39. In pursuance of the plan to create a number of complementary files (PADIS COM), negotiations were made with ILO and FAO for cooperation in the creation of sectoral information for which they were responsible and with regard to Africa. As a result, ILO made available to PADIS 15,000 bibliographic records which are germane to African development. By that means, the first PADIS complementary file ILIS/AFRICA was created. Futhremore, FAO and ILO were to provide staff to maintain ILIS/AFRICA and AGRIS/AFRICA. The following sectoral files being created: The African Regional Centre for Science and Technology Information System (ARCTIS); Information System on African Legislations, Treaties, Agreements etc. (LAW AFRICA); Trade and Finance Information System (TF AFRICA); African Information System on Population Activities (POPIN AFRICA); and the African Documentation System on Environment and Human Settlements (HABITAT AFRICA).

PADIS STAT and PADIS TEND

40. The French Government, under the auspices of ECA undertook a survey on the nature, structure and availability of statistical data in Africa. According to their recommendations, PADIS/STAT will be established at the following three levels:

1. Level I - Country profiles
2. Level II - Bulk of statistical information
3. Level III - Time series statistical data

Level I provides a comprehensive country prfile of one to two pages of statistical data on any one country. It makes use of the statistical data obtained from Levels II and III.

Level II contains the bulk of statistical data available at ECA at very low levels of aggregation.

Level III contains selected time series data.

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41. In order to progress with the limited resources available the work on Level III data base has been given top priority and is now in progress. The level III data base will meet most of the requirements of ECA for statistical data for analysis and projections. It will soon make it-possible to automate the various ECA statistical publications, like the African Statistical Year-book.

42. A representative of PADIS attended a workshop which was organized under the auspices of the Commission on Storage, Processing and Retrieval of Geological Data and the Eastern and Southern African Mineral Resources Development Centre. The outcome of the seminar was that the latter organization would see to the definition and accumulation of geological data while PADIS would undertake the computerized processing of the data.

PADIS NET

43. The European Space Research Institute of the European Space Agency assisted ECA by making a pre feasibility study of a pan African satellite communication network with linkages for teletransmission of bibliographic and numerical data. Currently the French Government has sponsored a mission to have another look at the same proposal with a view to rendering assistance.

44. In addition a senior PADIS staff member had participated in a workshop in the design of the data transmission networks sponsored by ESRIN and held in Toulouse, France.

National and Sub-Regional Centres

45. The national centres to be established in ECA member states constitute the hub around which PADIS will operate. Each national centre will collect, process and disseminate information related not only to the socio economic development of its country, but also to sectors like education, agriculture etc. It will be their responsibility to provide such information on request to other African countries. The Central Co-ordination Office, therefore submitted proposals for the creation of these centres to each member state. Unfortunately, the national centres are not being created as fast as has been envisaged. Algeria, Egypt, Morocco, Guinea, Congo and Tunisia have designated their national centres as PADIS participating centres.

46. It is assumed that the slow progress in the creation of national centres is the reluctance of governments to commit the required resources in accordance with the proposals submitted by PADIS. This reluctance stems from the low priority governments tend to attach to the establishment of information systems vis a vis other pressing priorities. Consequently, PADIS has to design an

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approach that minimizes the financial burden for African countries, i.e. the establishment of five sub regional documentation and information systems that will be capable to cater to the needs of the countries that are to be served by them. These sub regional centres will be properly equipped and manned.

47. As a preliminary step in this direction, PADIS submitted proposal at the last series of MULPOC meetings. The results of the meetings were extremely satisfactory since four of the five regions endorsed the proposal while the fifth (North African MULPOC) requested the commisioning of a feasibility study.

Descriptive Inventory Service

48. As has been observed earlier, PADIS maintains a Descriptive Inventory S[illegible] under the auspices of UNDP. Accordingly, a Directory of African Experts has been compiled. The first volume is with the printers. The first and second supplements are being prepared.

Future Directions

49. The main pre occupation of PADIS, in the next few years, will be to redouble and concentrate effort in getting national centres created in the member states, and create sub regional centres:- NADIS, WADIS, CADIS, ESADIS. However, since African countries have attained varying degrees of development in the field of information and documentation, it may be desirable to devote attention to those countries that appear immediately ready during a given period of time. Towards this end, PADIS has decided to concentrate on seeing to the creation of one national centres in each sub region every year. Having identified the countries, PADIS will give advisory and technical advice as well as financial assistance, if needed, towards with the procurement of equipment, especially computer hardware and software. It will also provide training facilities and fellowships as a means of strengthening the personnel that may be working there.

50. Computer facilities, technical assistance and training facilities will be made available at sub regional centres. When PADIS/NET has reached the stage of implementation, it is hoped that the national and sub regional centres as well as the Central Co-ordinations Office in Addis Ababa will be interconnected by telecommunication channels by means of satellite and ground stations. By similar means, access will be gained to data bases outside Africa particularly in Europe and America.

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51. PADIS hopes, in the coming year, to devise the Scientific and Technical Information for Development (STISD). It will be a set of data bases and banks accessible and distributed by teleprocessing throughout Africa by the PADIS network.

52. The TCDC programme of descriptive inventories, will continue. Yearly supplements of the Directory of Experts will be produced. As soon as necessary arrangements have been concluded, the following directories will be produced:

(a) Directory of Institutions

(b) Inventory of Development and Research Projects.

53. PADIS, it can be safely concluded, is working towards fulfilling the objectives for which it was established, thanks to the financial support of donor agencies. But its ultimate success will depend on the earnestness with which African countries take the information and documentation project. That seriousness of purpose will be reflected not only by the establishment of national centres in each country but also by the provision of the necessary infrastructure like libraries, national telecommunication network, postal services, telephone telex etc. which facilitate documentation and information activities.